THE NATURAL DISASTER REDUCTION INITIATIVE

An Introduction to the Global Disaster Information Network (GDIN)

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National Hurricane Conference
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Good Morning! It is a pleasure to be here at 21st Annual National Hurricane Conference.

In February 1997, Vice President Gore realized that there were "…untapped opportunities…"

> **"…to ensure that federal agencies have access to the tools and infrastructure…" and that the "…need is even greater in the international disaster management community…"**

Last year, I co-chaired an interagency task force to study the need for a national and international information system to deal with disasters. The focus was how to place accurate information in the hands of those who make critical life and property decisions to save more lives and reduce disaster costs. The task force concluded by bringing people and information together through the use of technology, we have the best opportunity ever, right now, to solve this problem.

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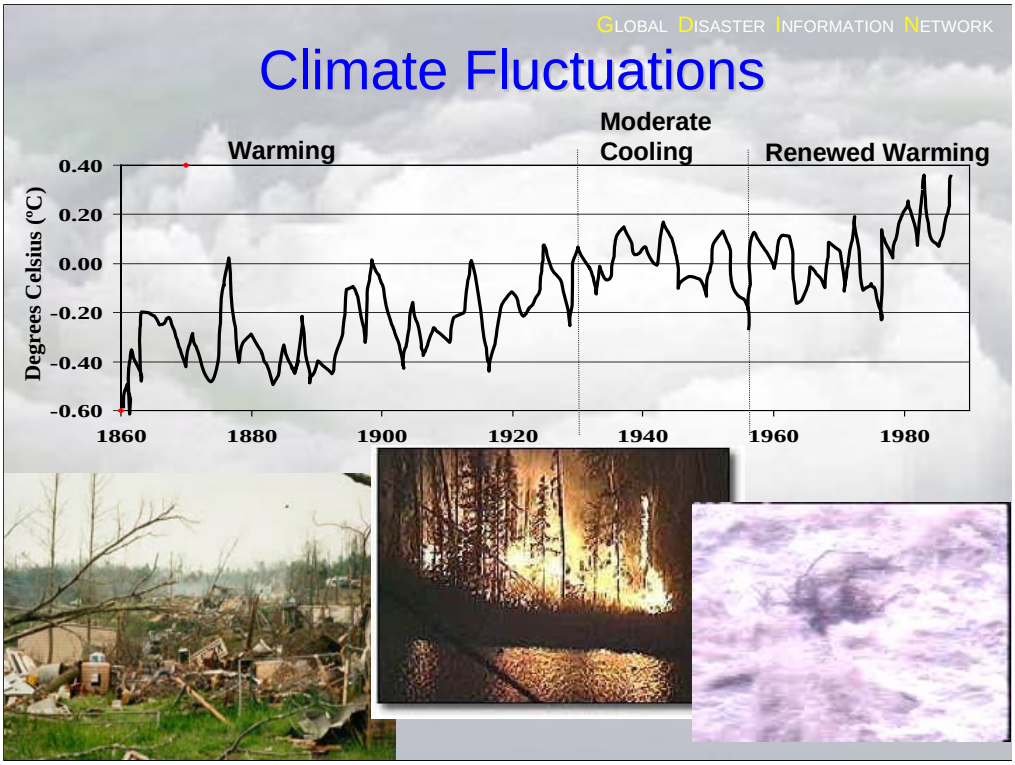

There is also growing evidence that the frequency and intensity of weather-related hazards are modulated by changes in climate, that is fluctuations in climate extremes. Events thought to occur only once in a century now appear to be recurring more often, threatening the lives, property, natural resources, and vitality of local and regional economies throughout the nation.

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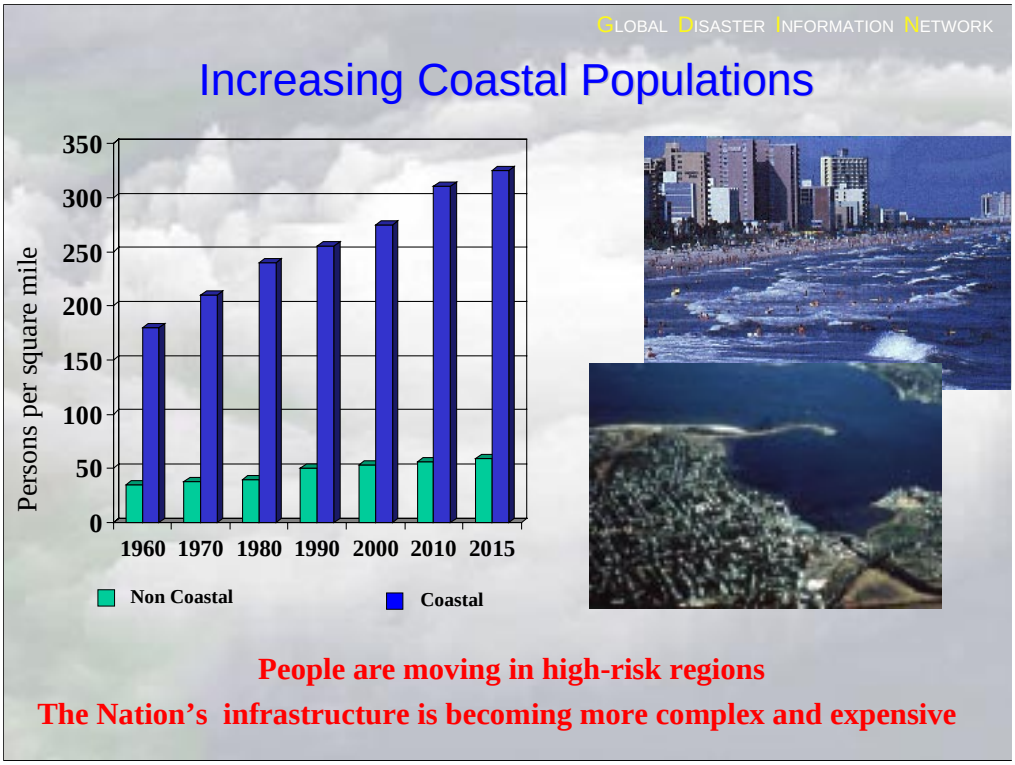
Disaster Costs are High and Rising

Costs in US 1992-1996 averaged $54.3 Billion per year

Future disasters could cost more than $150 Billion each

- Major earthquake
- Catastrophic hurricane

Disaster costs are high,….and rising. Average yearly costs are now over $50 Billion. A major disaster, an 8.0 magnitude earthquake for instance, can alone triple the cost. The frequency and costs of natural disasters are increasing for several reasons.



First, changes in the way we live have increased both impacts and risks. Perhaps the most important trend exacerbating risks and costs has been the demographic shift from the inner regions of the U.S. to our coasts.

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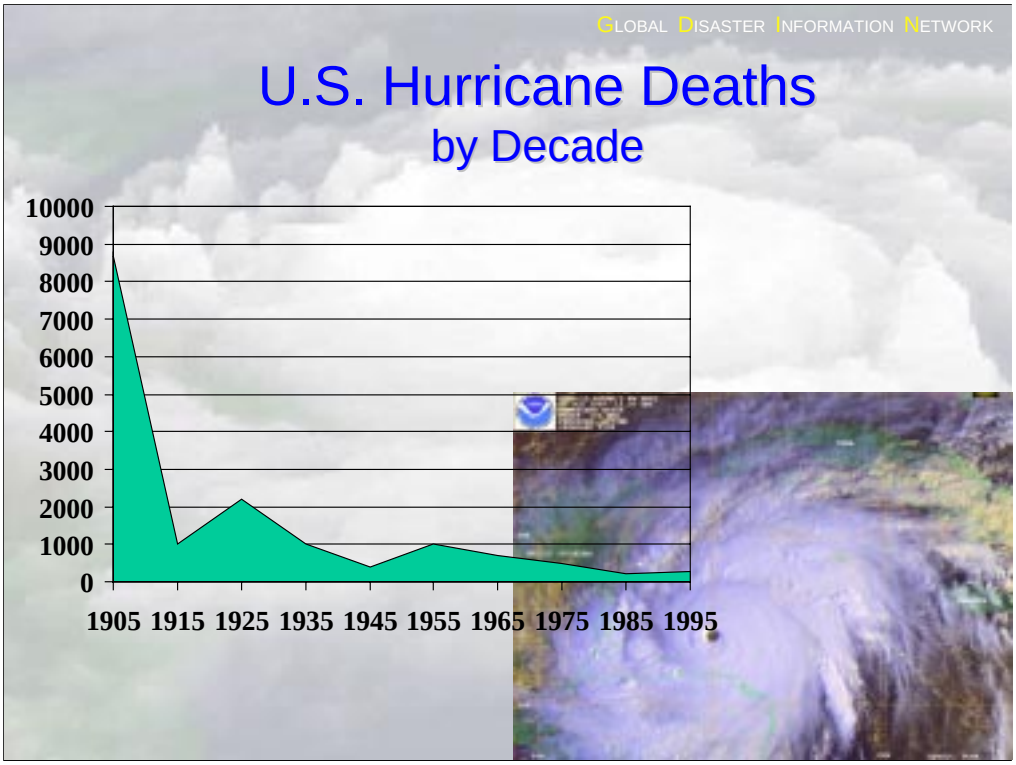
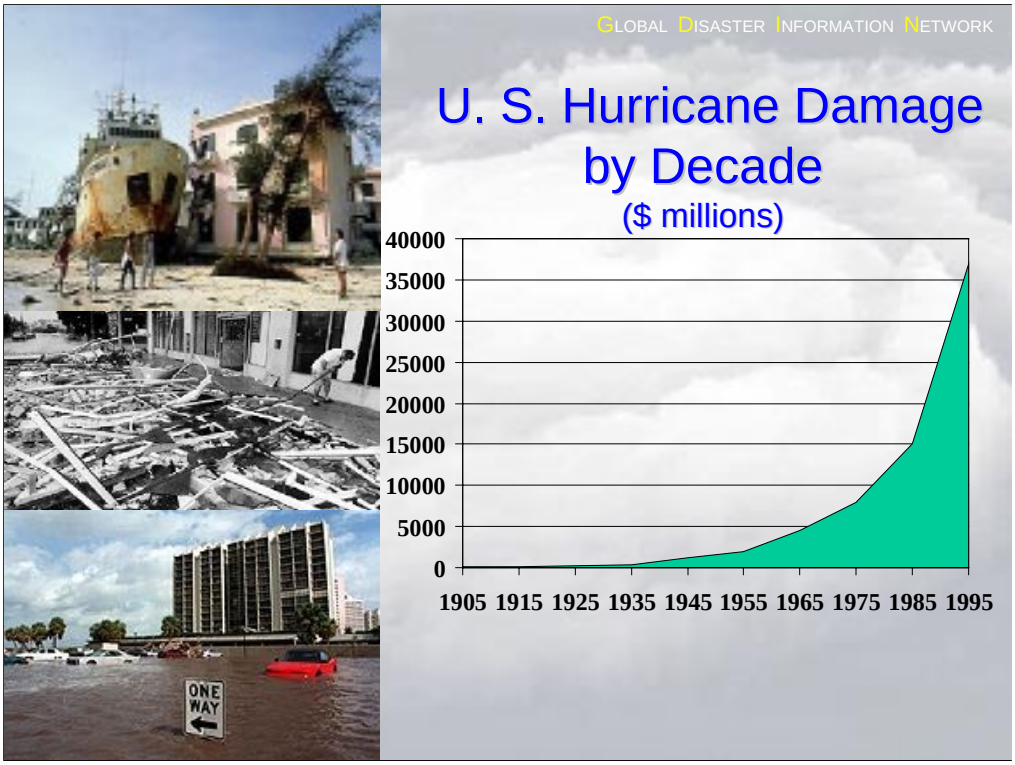


A third important point is that while deaths due to hurricanes have generally declined over the past century……..<NEXT SLIDE>



…...the economic costs have continued to rise.

The costs of such events are enormous – just preparing for a typical hurricane warning area of 300 miles of coastline means $50 million in direct economic costs.

Other costs are also significant – but not as visible and not as broadly understood. It is difficult, for example, to measure the social and economic costs associated with business closures, loss of landfill capacity from storm debris, and private industry service losses and overtime charges.

Sensing a "disaster-in-the-making," the insurance industry foresees losses of $100 billion. And by 2010, 75% of the U.S. population is expected to live in coastal areas.

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The Problem

"…to providing information for disaster management is not effectively utilizing a wealth of data that resides with various organizations...."

Reducing Disaster Losses Through Better Information,
NAS, Board on Natural Disasters, January, 1999

In many cases, what the information one agency needs is at another agency, but unavailable. So we need to break down these barriers to disaster information management.

But the best prediction and assessment tools won't count unless we can get urgent information into the hands of those who most need it – *when they most need it*…...

So I am pleased to note two Federal initiatives today that work to reduce the costs of natural disasters *before* they occur.

The first is the Natural Disaster Reduction Initiative. This cross-NOAA initiative draws from NOAA's strengths in environment forecast and warning systems, data and information management, research and development, and federal-state partnerships for coastal resource management. The over-all goal of the Natural Disaster Reduction Initiative is to significantly cut the costs to society and the risk of human life, property and natural resources as a result of natural hazards.

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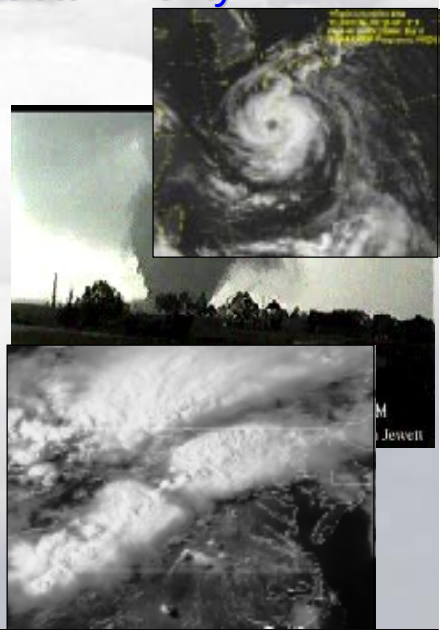
Disaster Management
A National and Global Priority

- Need to establish mechanisms for integrating new tools to disaster management
- Overcome policy, organizational, and implementation issues
- The Vice President has a vision to address these issues



To achieve these goals, we need to establish mechanisms for integrating new tools and information to disaster management.

Vice President Gore has a vision of "a multi- agency program for the integration of natural disaster-related information and its dissemination to emergency managers and others who can take action to reduce disaster losses." Along with robust computer and broadcast networks that can operate during all phases of disaster management, the program will establish a public/private partnership to bring all stakeholders together to develop a truly comprehensive global disaster network, the Global Disaster Information Network (GDIN).

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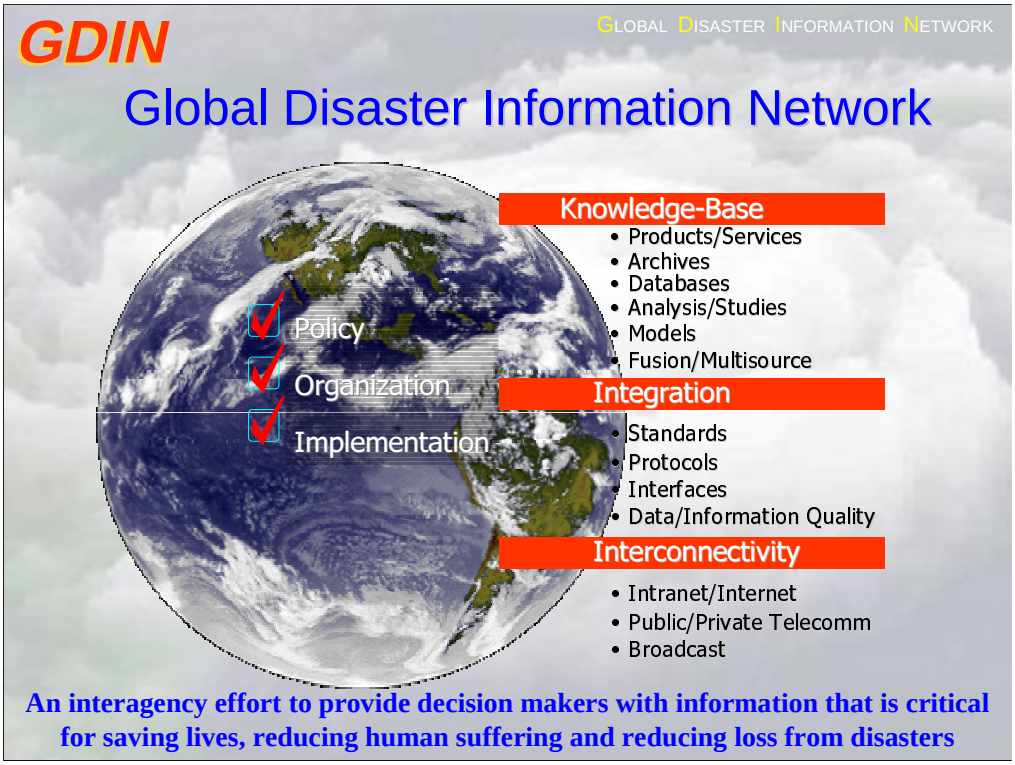

The Global Disaster Information Network will complement this effort by ensuring the efficient and timely dissemination of critical data and products. I'm going to focus primarily on the exciting concept of the Global Disaster Information Network today. You will hear much about the Natural Disaster Reduction Initiative from others. But before I show you why the Network offers such exciting promise, it will be useful to consider why both the Disaster Reduction Initiative and the Information Network are so vital….

What we are trying to do is to provide a knowledge base and integrate and interconnect the information which we currently have from satellites – from operational and research satellites, from the intelligence community, and from non-U.S. satellites - all the international satellites. We are trying to get that information into a single system so that a disaster manager will have the best possible information to make decisions. <NEXT SLIDE>

The Global Disaster Information Network will be created for just this purpose. The Network will take us beyond monitoring, assessment and prediction to the dissemination of information when and where it is needed. GDIN will be the disaster managment internet portal, the YAHOO! For Disaster Management.

The GDIN concept supports Vice President Gore's vision of a global disaster information network that will provide better warnings to emergency managers and, therefore, improve preparedness and response. Incrementally, the network could facilitate federal agency data integration, interfaces with users, and the efficient and timely dissemination of data and products.

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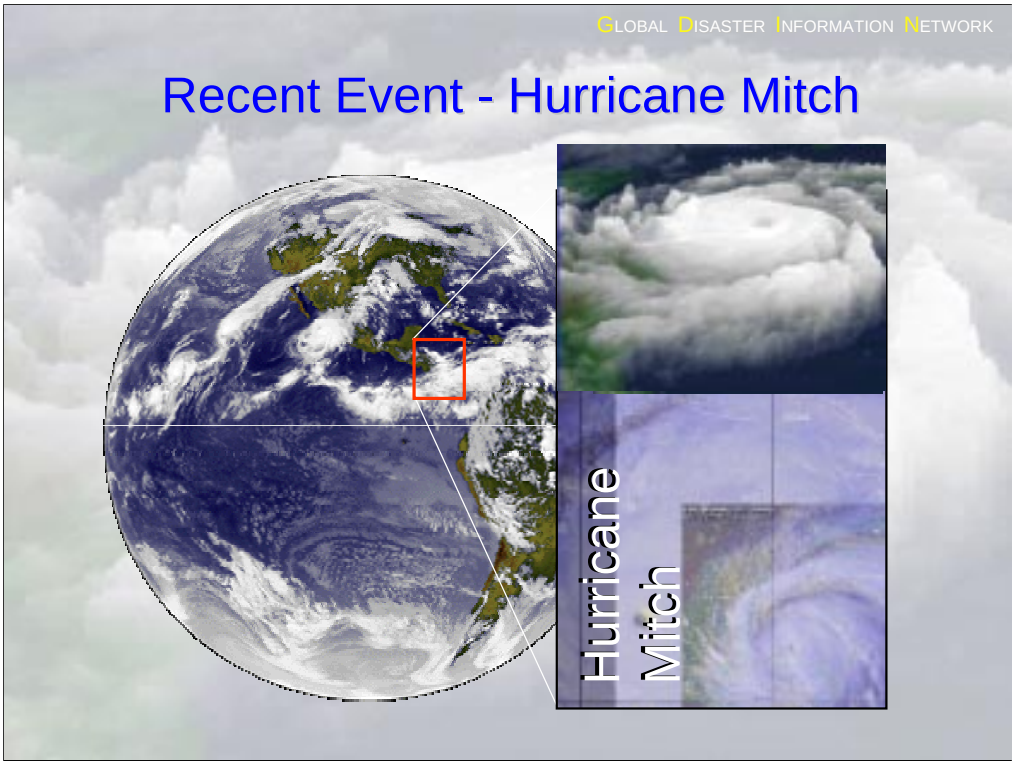
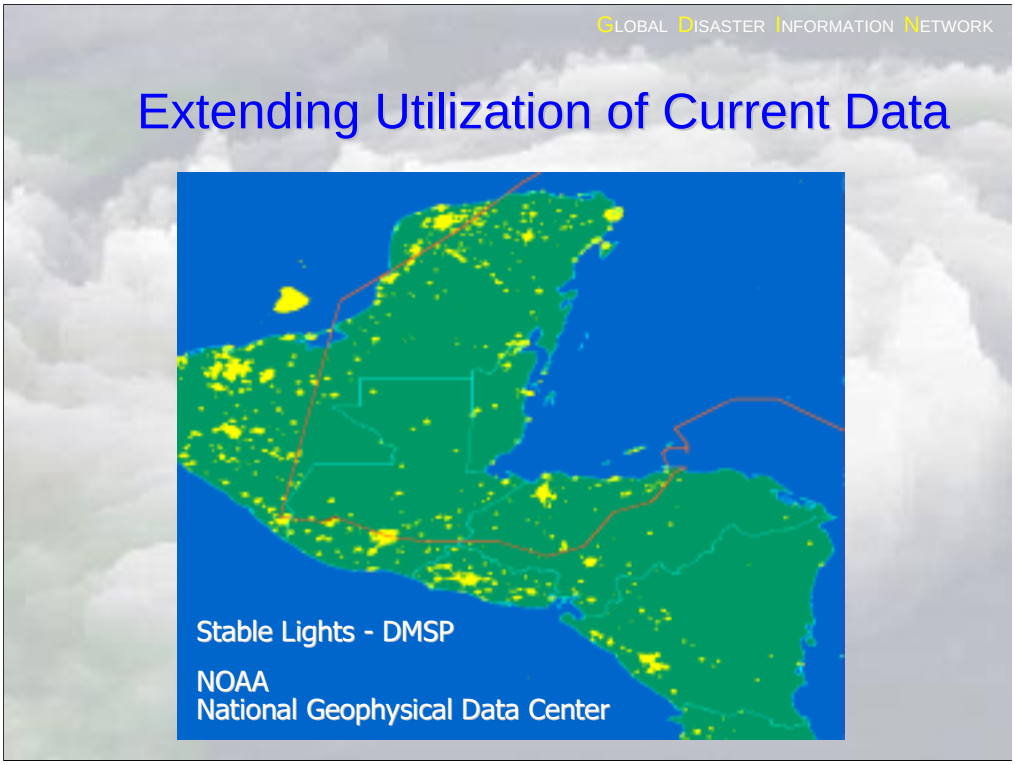


Let me give you a recent example. Last year, Hurricane Mitch that hit Honduras and Nicaragua, causing extensive damage and a loss of life in Honduras and Nicaragua, that was about the same as the loss of life caused by a hurricane that hit the Caribbean in 1780. About 10,000 people died. 10,000 people died in 1780. 10,000 people died in 1998. Have we made progress? <NEXT SLIDE>



Well, we certainly have made progress in terms of having information available, and in fact, you can see the kind of information that we get from the DMSP satellites. These are the "stable lights" that NOAA and Air Force maps put together.

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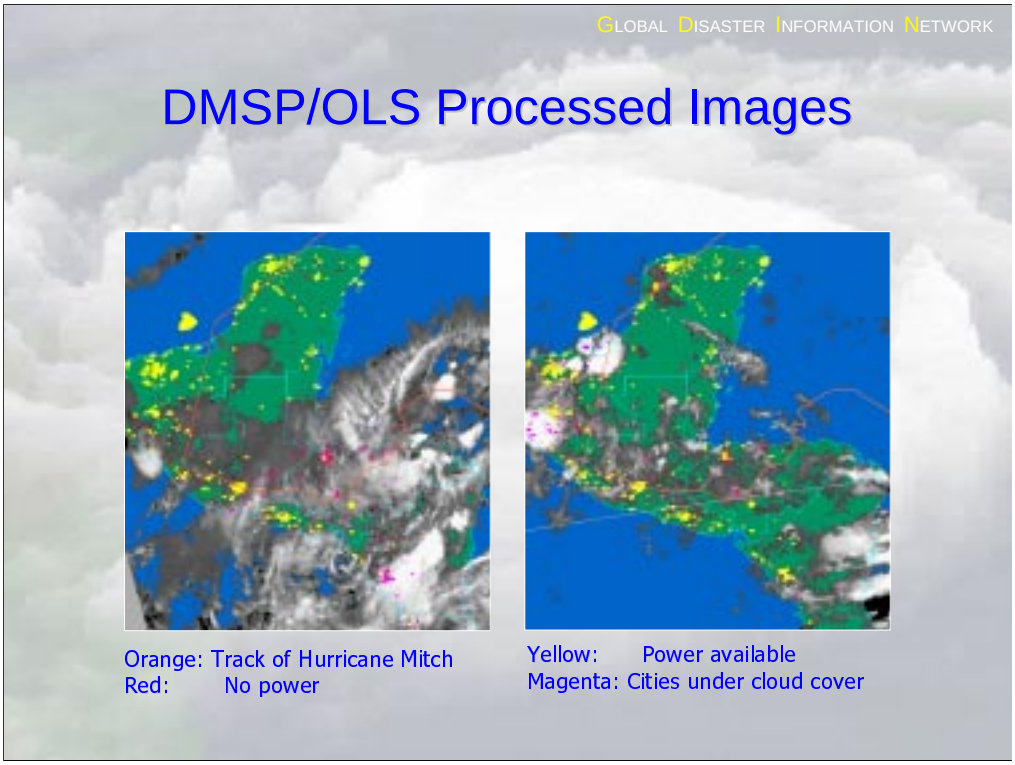

If you compare the distribution of lights before and after the hurricane made landfall, you can see that a lot of the lights are out. We can do even more with the available information. We can provide information about landslide susceptibility. We can look at the actual impacts of the storm as we go through and we are doing that now. In fact, last December there was a day-long conference in downtown Washington to discuss how we use these data and information to help these countries recover.

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Part of the recovery is providing the best possible information about what is actually there; using LANDSAT data, SPOT data, AVHRR data, other existing remotely sensed and in situ data, plus some dry products from the intelligence community, as we look at ways to provide the information out to those managers who are trying to reconstruct their countries..

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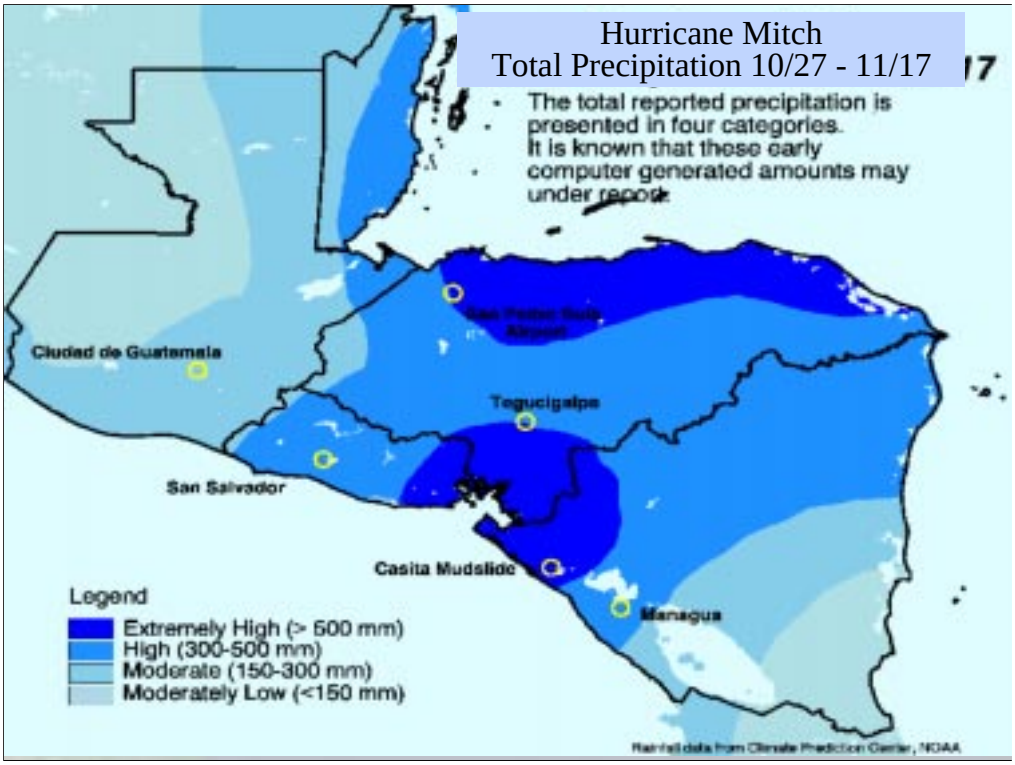

One example of the type of information that we have been able to provide is a map of total precipitation that occurred during Hurricane Mitch. It was a really interesting hurricane that hit Honduras, because it came up to the coast and then stopped. We did not forecast that the hurricane was going to stop. We thought it was going to keep moving. But it stopped and dumped from six to eight feet of rainfall there which caused the flood, and that was one of the major problems.

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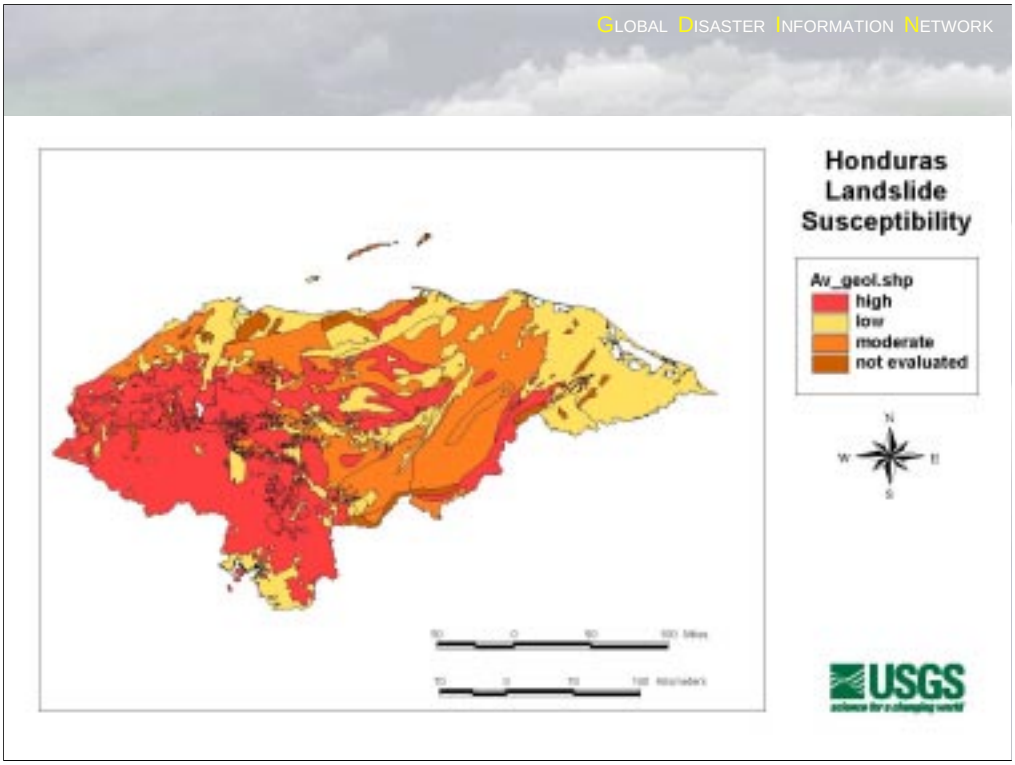
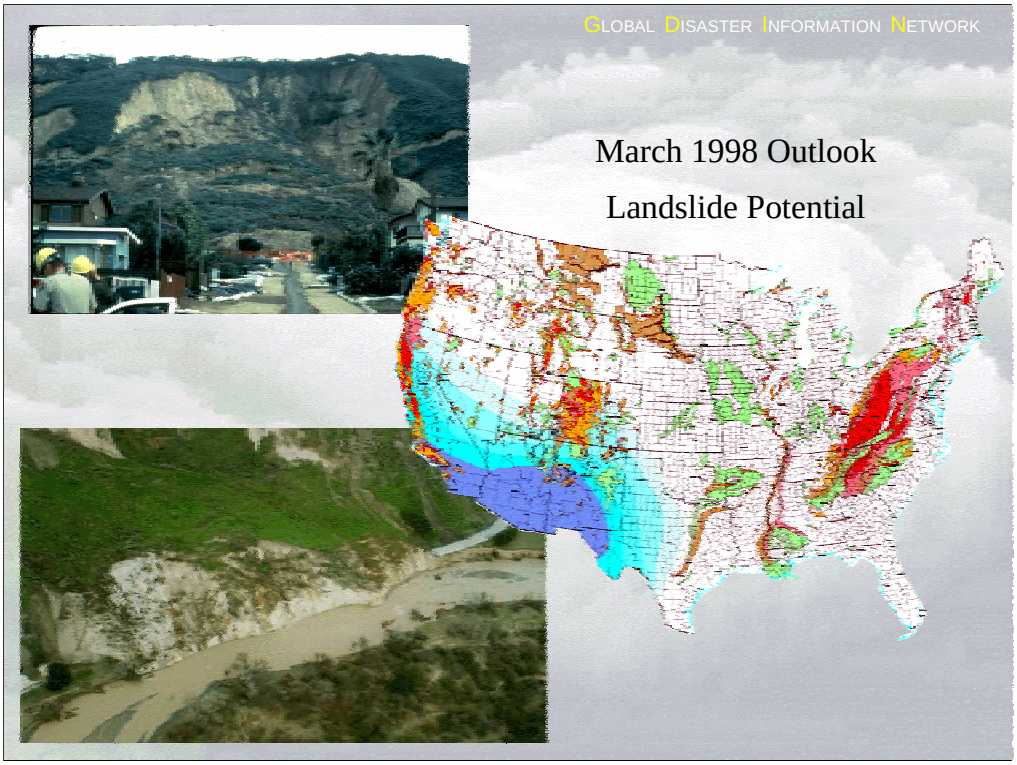


We have looked at the landslide susceptibility in Honduras. You can see where you have high landslide susceptibility. If you add onto that lots of rainfall, you know that you're going to have a disaster. As a result of Hurricane Mitch we have started an effort that we would like to make systematic as part of this Global Disaster Information Network. We're putting these kinds of maps together - rainfall and landslide susceptibility - so we will know where something is going to happen. We're starting to do that now for the United States. <NEXT SLIDE>



In fact, we have maps that has U.S. projected rainfall and U.S. landslide susceptibility. Where we have high rainfall and landslide susceptibility is where we can expect to see some problems. We're starting to merge that information already on an ad hoc basis. GDIN will do his on a systematic basis.

Let me give you two current examples

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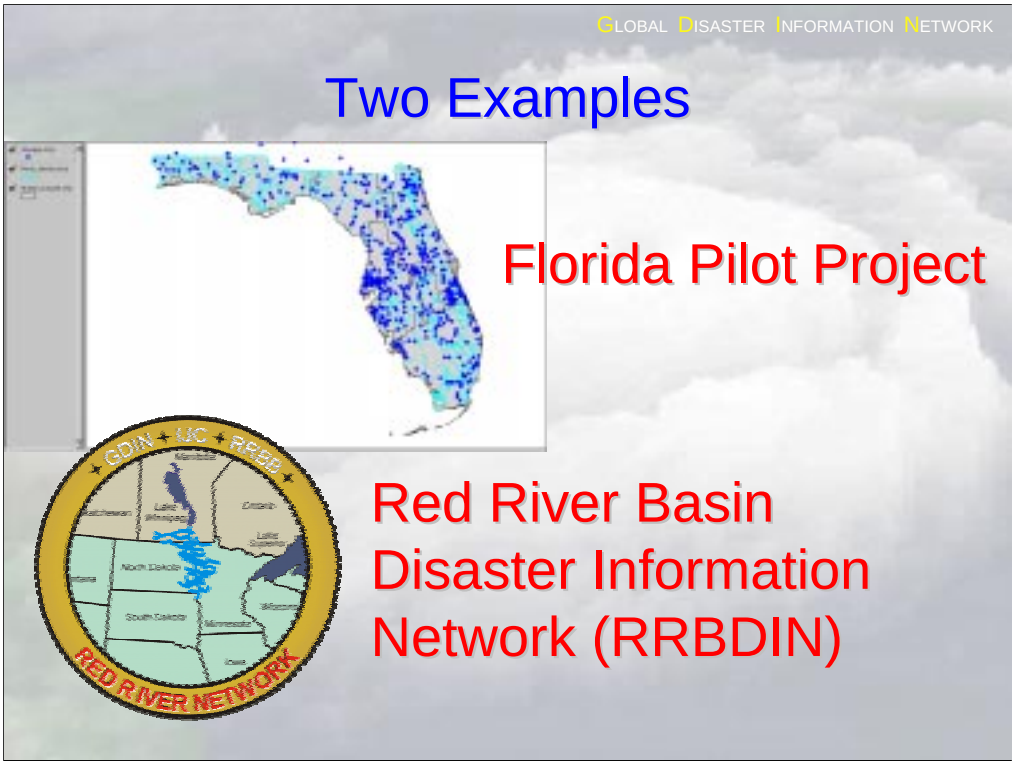


The Florida Pilot Project and the Red River Basin Disaster Information Network.

GLOBAL DISASTER INFORMATION NETWORK

Florida Pilot Project

Supporting the State of Florida,

Department of Emergency Management

Track based on Hurricane Donna, 1960

Goals

- Enhance user access to emergency management information
- Integrate and standardize existing regional data
- Improve risk assessment through improved information availability

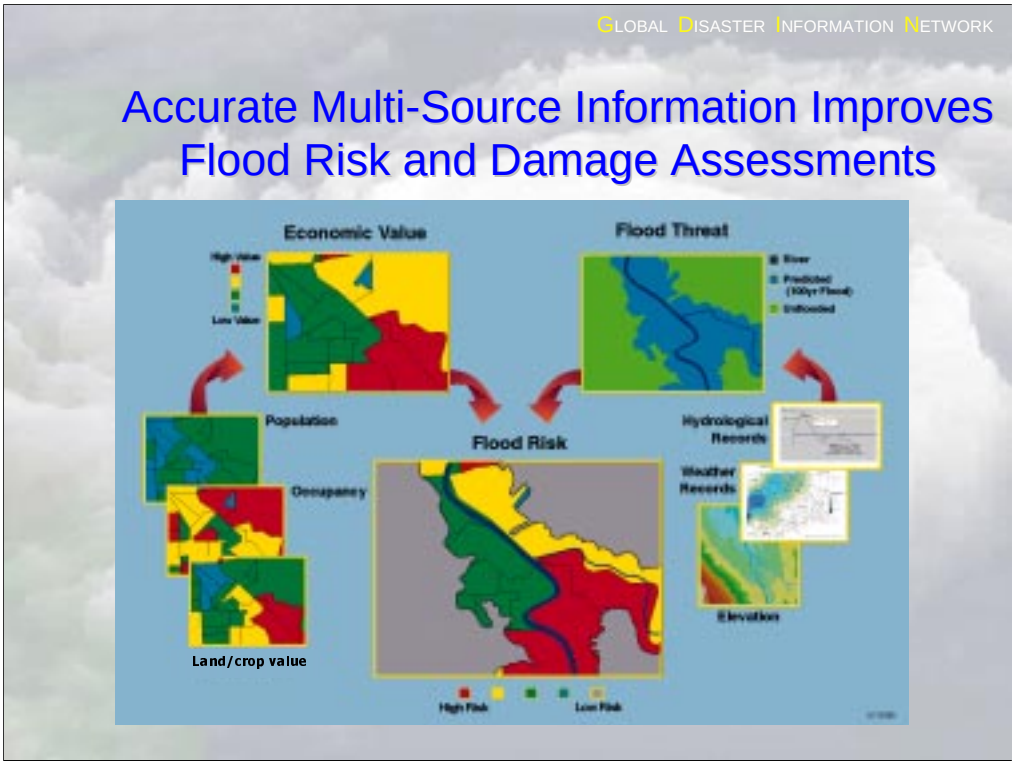
Direct involvement of customer/user data flow

Integrate of Federal data providers within Florida Emergency Operations Center

Under GDIN, we are supporting Florida's Department of Emergency management in their annual Florida hurricane preparation exercise.

The exercise used the actual wind speeds, precipitation amounts, and the 1960 storm track of Hurricane Donna provided from NOAA archives.

The goal is to enhance user access to this and other emergency management information. The Pilot Project integrated and standardized existing regional data and made it accessible through a common set of tools, which dramatically enhanced risk assessment through improved information availability



We are now capable of making a tremendous amount of information available, and putting it in a form so that it is really useful.

Take flood risks, for example. By integrating multiple sources of information, You, show were the flood threat is…..

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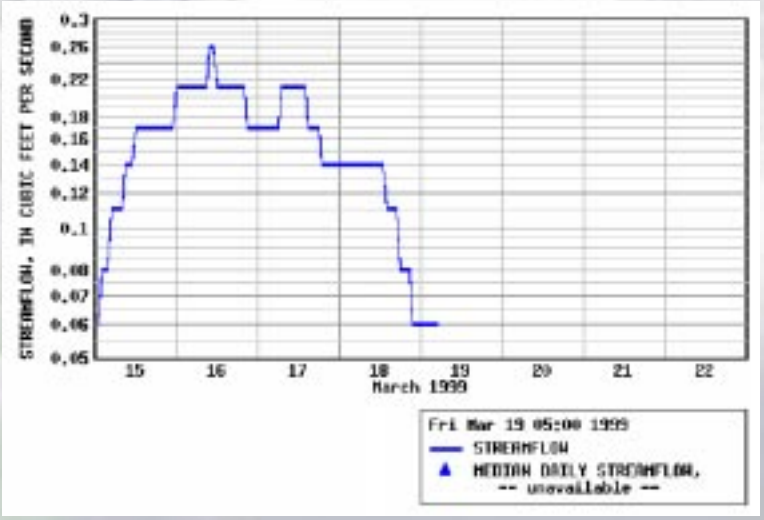
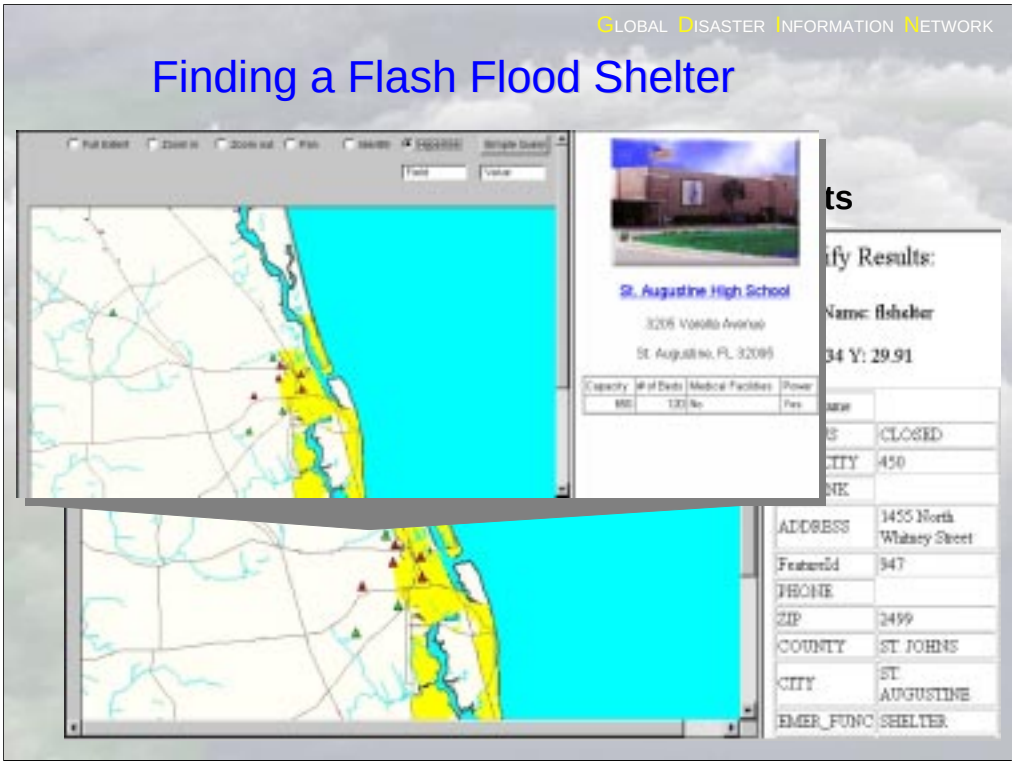
Stream Gauge Network



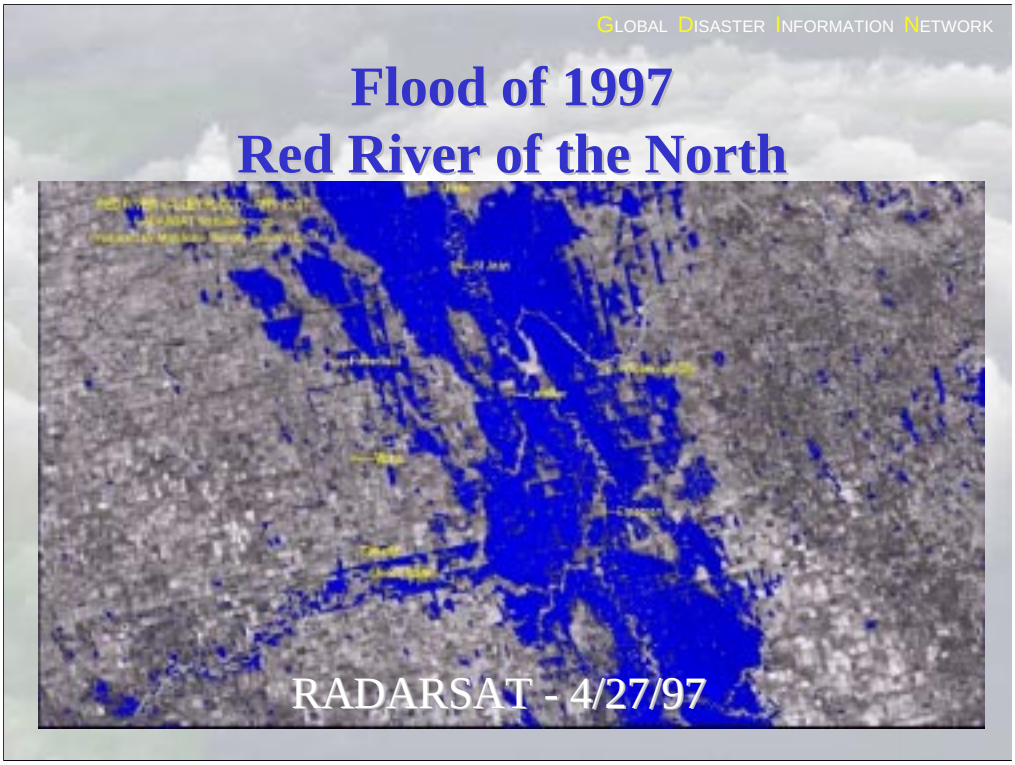
You can monitor in real time stream flow and cresting potential. Many real-time readouts provided by NOAA, USGS, and Corps of Engineers. Automated techniques to search, acquire, and process data from diverse sources can send triggers to disaster management, providing tailored information to that meets their needs.



…..., and then provide the information to the public and to managers who must make critical decisions to protect life and property.

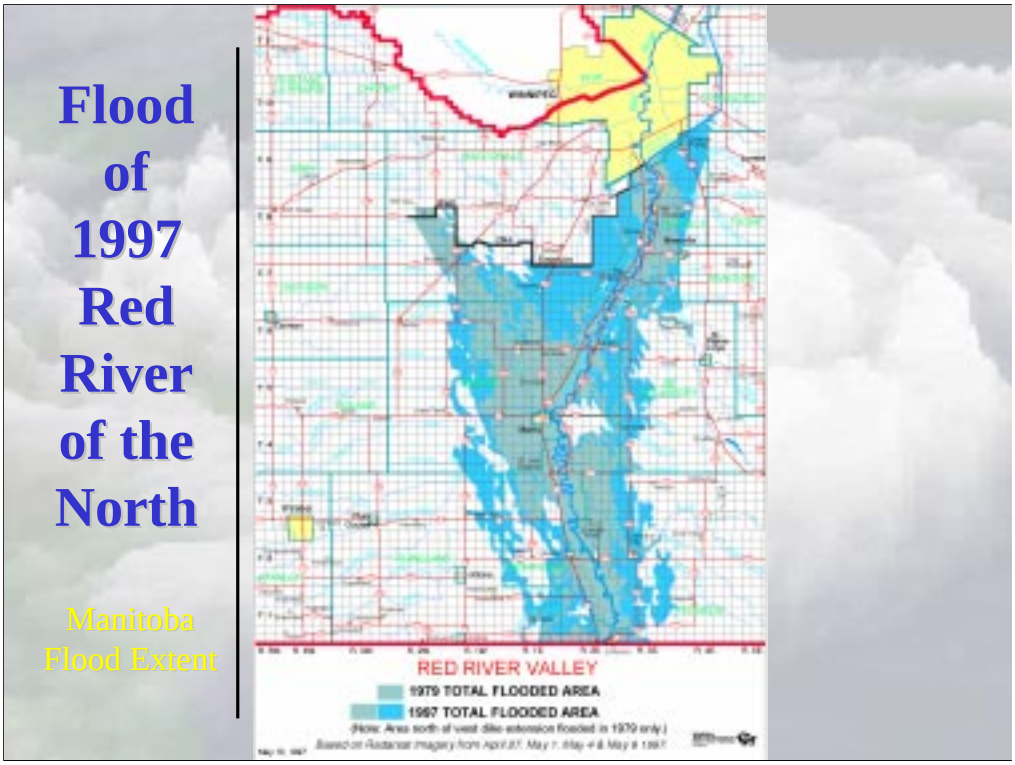
For instance, once a flood assessment is determined, the status of available shelters can be provided to the public. Only through an total integration of information can scenarios such as this be achieved. Sounds far fetched….too hard to do….It's being done today.

Remember Red River.



The Red River of the North experienced a major flood in 1997 which severely impacted several communities in the U.S. and Canada.

GDIN will allow you to take information from a source such as RADARSAT…..



….and transpose it onto other types of information.

Here you see the extent of the 1997 flood compared to the extent of the flood in 1979.

Red River Basin Disaster Information Network

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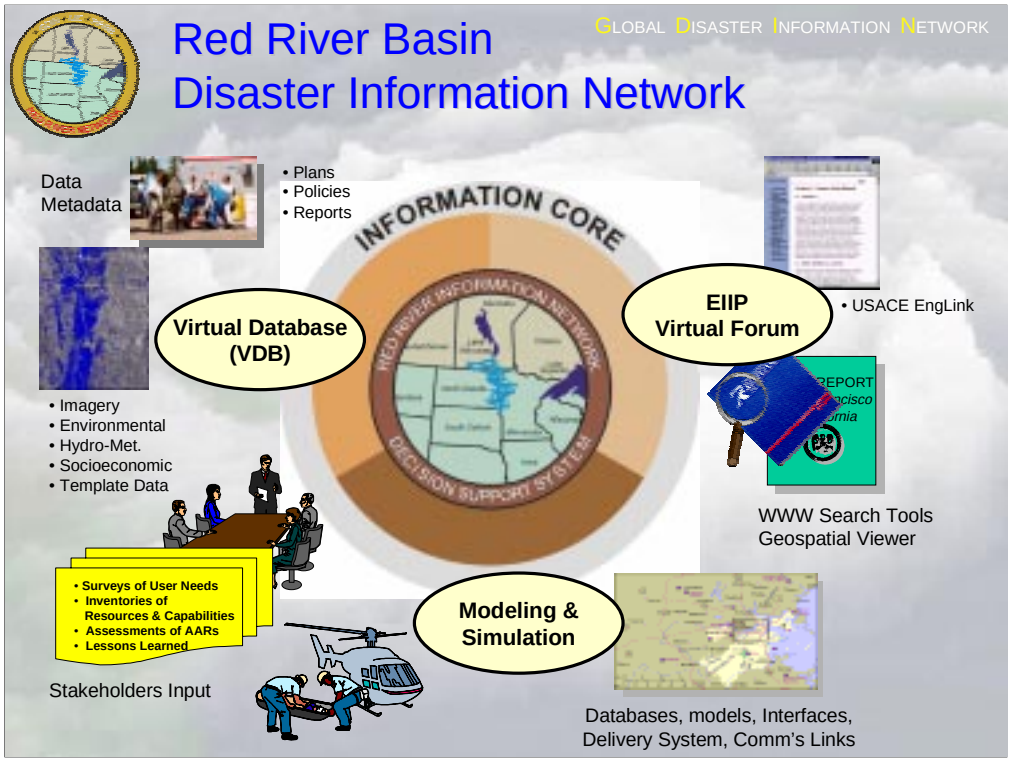
The Red River Basin Stakeholder Community

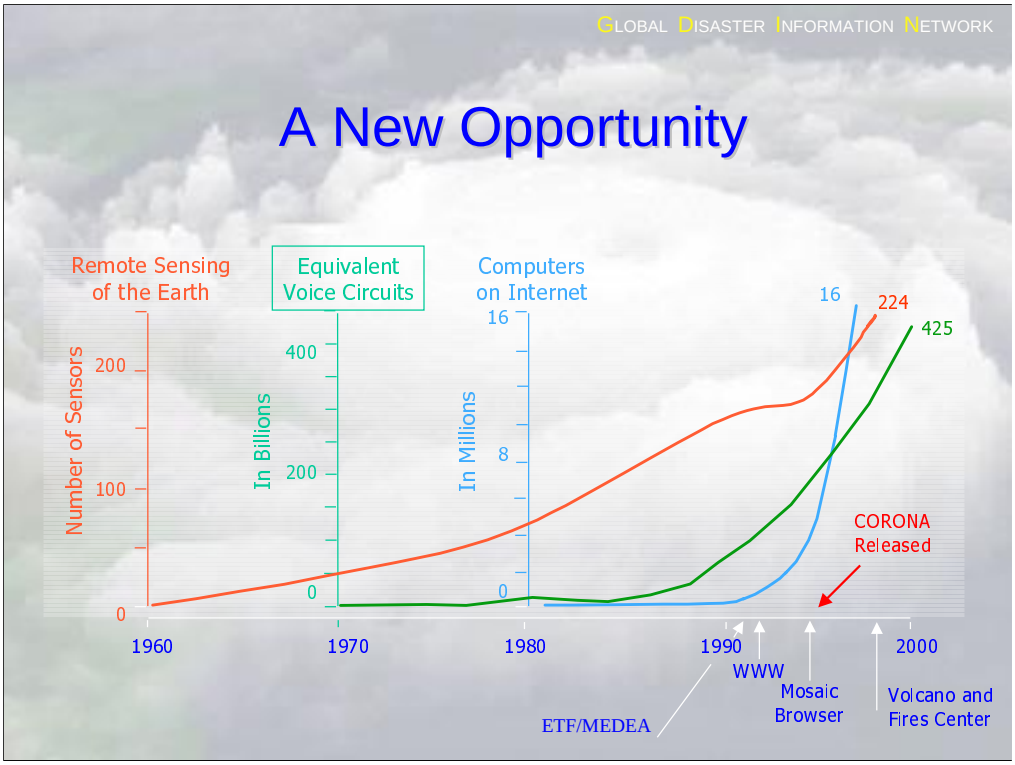
Over 400 basin-wide participants have been identified from the following groups:

- Federal: Environment Canada, FEMA, USACE, USGS, NWS
- State/Provincial: MN, ND, SD, and Manitoba
- County/Local Municipalities
- Red River Basin Board
- The International Coalition
- Watershed Boards
- First Nations/Native Americans
- Volunteers (e.g., International Red Cross, Ham Radio Operators)
- Consultants
- Academicians

In response to a series of workshops held in the Red River region following the floods of Spring '97, stakeholders expressed the need and desire to utilize Internet-based technologies to enhance coordination of information sharing, before, during and after disaster.



Today, Red River Basin Disaster Information Network facilitates the exchange of vital information, and to provide a venue for the coordination of regional efforts.



This is just one example of a disaster management network. We see a real opportunity, because as you all know it's not just computer power that is growing exponentially, but the number of computers on-line; the number of telephones; the number of systems available; the number of people on the Web.

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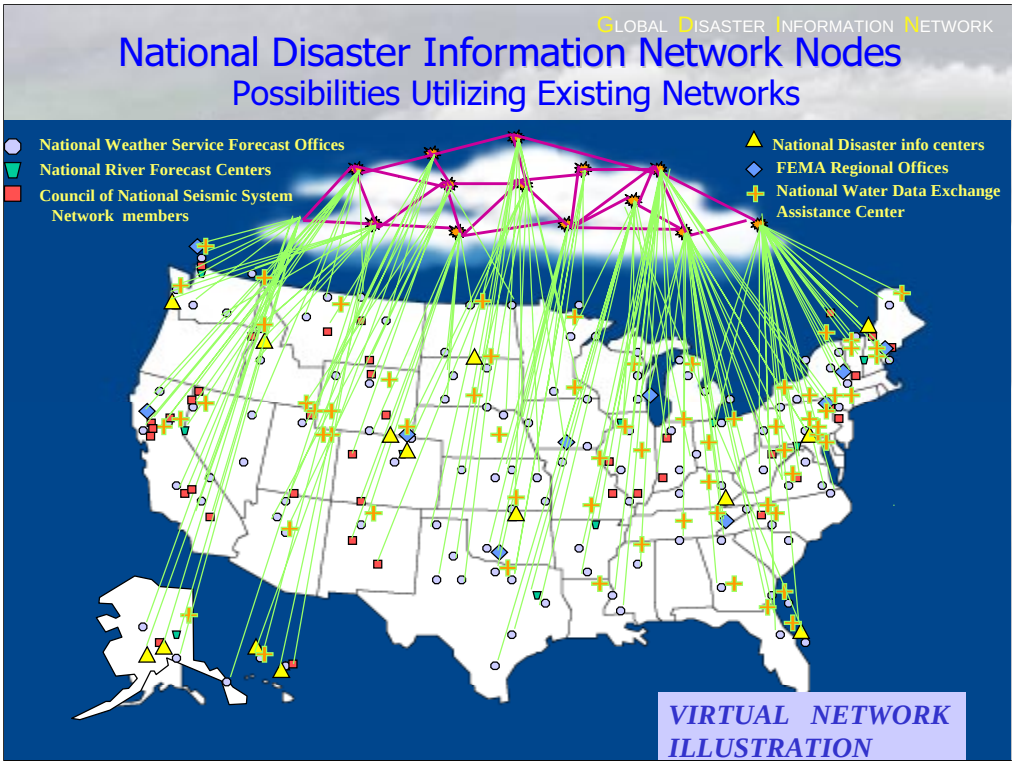

This National Disaster Information Network shows you the idea that we are considering - not looking at a bricks and mortar building where everything comes in, but a virtual network. This is the way the world works today, where everybody is connected. It is a way to have all the information that is relevant to your particular problems if you're an emergency manager working at your desk. You plug in if you want to know about something that's happening. You can get that: the information ranges from earthquakes, to volcanoes, to hurricanes, droughts, and floods - all the kinds of natural disasters that we have.
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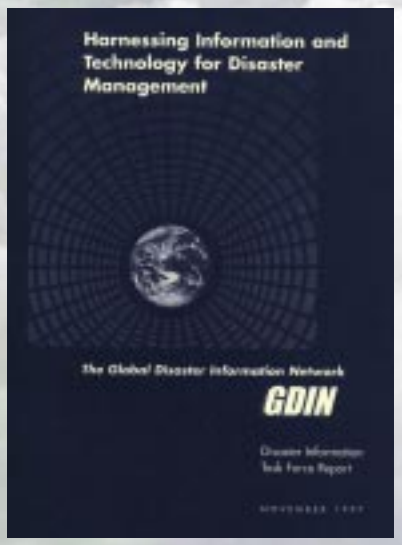
Report of an Interagency Task Force



Findings

- A GDIN is feasible and beneficial

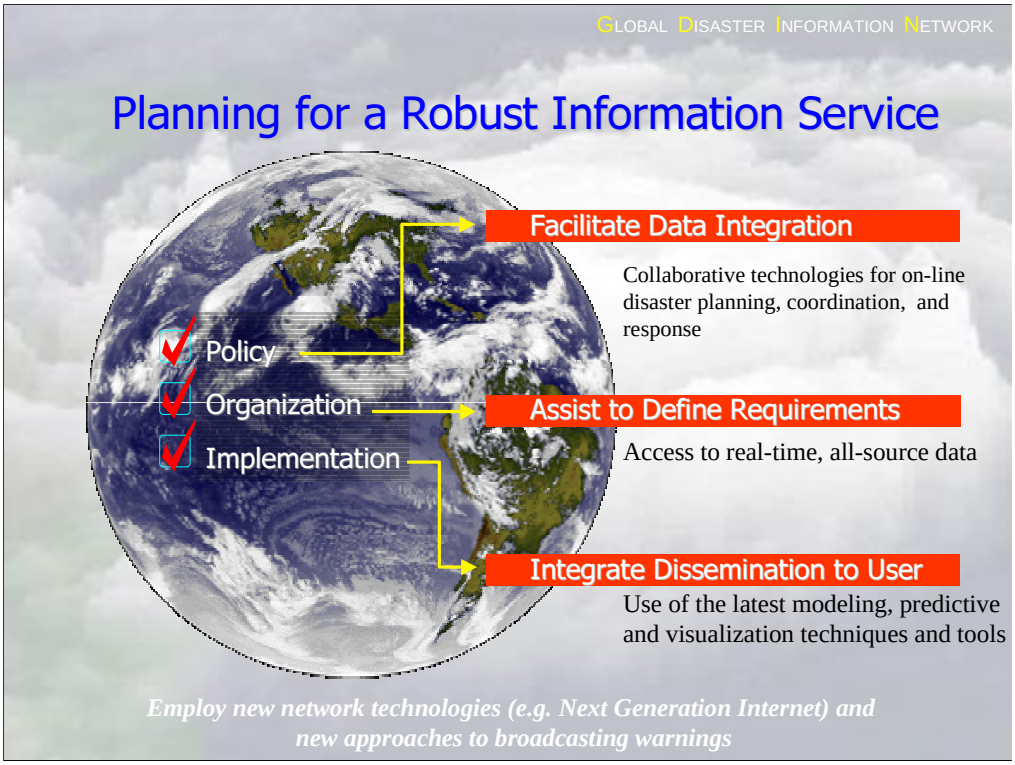
Strategy

- Begin national—then go global

Process

- Utilize latest technologies, involve all stake-holders and implement proposed management structure

As I mentioned at the beginning of my talk, I co-chaired a task force to study this problem. The results, released in November 1997, are documented in 125-page feasibility study, "Harnessing Information and Technology for Disaster Management: The Global Disaster Information Network - Disaster Information Task Force Report." The task force found that a GDIN is feasible and beneficial. It recommended to tie the nation's disaster management networks together then go global, using latest technologies, involving all stake-holders and implementing appropriated management structures.



We are working hard to maximize the capabilities of the Federal government to cut the costs of natural disasters *before* they occur --- and the Natural Disaster Reduction Initiative and the Global Disaster Information Network are valuable vehicles for accomplishing this.

GDIN will require a strong interagency effort to be successful, and I would expect the Office of the federal Coordinator to play a major role within the Federal meteorological community.

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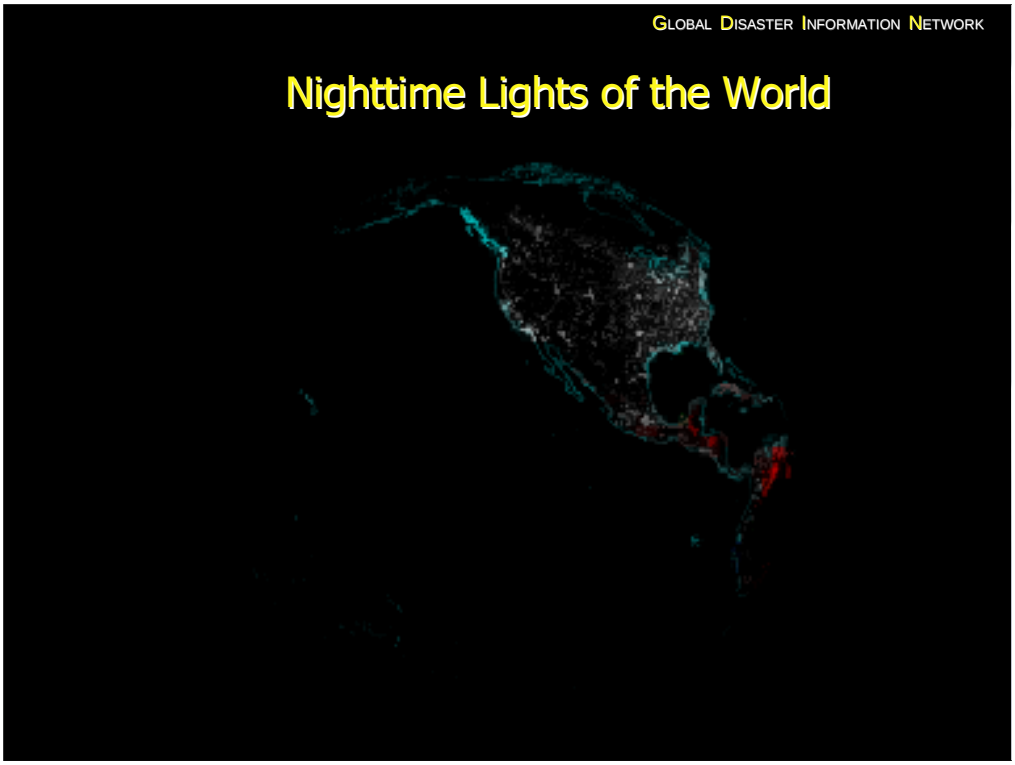
GDIN - Next Steps

- Facilitate interconnectivity of Federal agencies
- Enhance the data interoperability process
- Promulgate enabling data release policies
- Demonstrate value-added potential of a GDIN

Partnerships at every level will be key. Partnerships with industry, volunteer organizations, states and local communities are becoming increasingly important in identifying and focusing our efforts on the areas of greatest need.

Many of you have already given us vital feedback on the research and services that NOAA and other Federal agencies provide. That feedback is put to excellent use – so please keep it coming..



I'd like to close with an image that comes from the DMSP satellites, but is now being produced as a joint effort between NOAA and the Air Force. The red lights are fires. These are not lights that are not constant, so that we know they are temporary - these are fires. White lights are real lights - those are steady lights from human settlements during the night. The green lights up in the very north and some in Africa are natural gas flares. The blue lights, for example between Korea and Japan and off the coast of Argentina are fishing fleets. So you can see that there is a lot that we can learn about what the earth is doing by looking at the lights. We had proposed that maybe the U.S. 2000 Decennial Census could be taken by looking at night lights, but that might be more difficult.

The challenges to disaster management are enormous. As we look toward the future, your continuing collaboration are greatly appreciated. Thank you.